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2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

KEMRON Environmental Services
1359A Ellsworth Industrial Blv
Atlanta GA 30318

April 06, 2012

Project: Riverside Avenue

Submittal Date: 03/27/2012
Group Number: 1298061
SDG: RAK03
PO Number: SF1838-018
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs (LLI) #
Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample	6594087

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	KEMRON Environmental Services	Attn: Janelle Murphy
ELECTRONIC COPY TO	Data Package Group	

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

238143

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Analysis Report

Sample Description: Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample
Riverside Avenue

LLI Sample # WW 6594087
LLI Group # 1298061
Account # 09694

Project Name: Riverside Avenue

Collected: 03/27/2012 07:55 by FR

Submitted: 03/27/2012 17:20
Reported: 04/06/2012 10:27

KEMRON Environmental Services
1359A Ellsworth Industrial Blv
Atlanta GA 30318

TANK4 SDG#: RAK03-01*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received MRL*	As Received EDL	Dilution Factor
Dioxins/Furans	**SW-846 8290A**		**pg/l**		**pg/l**	**pg/l**	
10915	2378-TCDD	1746-01-6	494		200	42.1	1
10915	12378-PeCDD	40321-76-4	< 1,000		1,000	41.6	1
10915	123478-HxCDD	39227-28-6	1,990	B	1,000	74.0	1
10915	123678-HxCDD	57653-85-7	112,000		1,000	74.1	1
10915	123789-HxCDD	19408-74-3	5,890	B	1,000	73.6	1
10915	1234678-HpCDD	35822-46-9	7,560,000 EB		1,000	449	1
10915	OCDD	3268-87-9	59,800,000 EB		2,000	393	1
11645	2378-TCDF-Conf	51207-31-9	705	BCQ	200	97.9	1
10915	12378-PeCDF	57117-41-6	< 1,000		1,000	26.6	1
10915	23478-PeCDF	57117-31-4	< 1,000		1,000	23.1	1
10915	123478-HxCDF	70648-26-9	4,860	B	1,000	45.6	1
10915	123678-HxCDF	57117-44-9	1,320	B	1,000	45.5	1
10915	123789-HxCDF	72918-21-9	< 1,000		1,000	47.3	1
10915	234678-HxCDF	60851-34-5	5,510	B	1,000	45.7	1
10915	1234678-HpCDF	67562-39-4	355,000 B		1,000	95.6	1
10915	1234789-HpCDF	55673-89-7	31,900	B	1,000	109	1
10915	OCDF	39001-02-0	2,430,000 B		2,000	75.9	1

Reporting limits were raised due to interference from the sample matrix.

Total Homologues	**SW-846 8290A**		**pg/l**		**pg/l**	**pg/l**	
10915	Total TCDD	41903-57-5	9,750	QB	200	42.1	1
10915	Total PeCDD	36088-22-9	10,200 QB		1,000	41.6	1
10915	Total HxCDD	34465-46-8	222,000 QB		1,000	73.9	1
10915	Total HpCDD	37871-00-4	10,700,000 EQB		1,000	449	1
10915	Total PCDD	n.a.	70,700,000 EBQ				1
10915	Total TCDF	55722-27-5	13,000 QB		200	51.8	1
10915	Total PeCDF	30402-15-4	8,190	QB	1,000	24.7	1
10915	Total HxCDF	55684-94-1	207,000 QB		1,000	46.0	1
10915	Total HpCDF	38998-75-3	1,830,000 QB		1,000	102	1
10915	Total PCDF	n.a.	4,500,000 BQ				1
10915	Total PCDD/PCDF	n.a.	75,200,000 EBQ				1

Labeled Compounds	**%Rec**	**Windows**
13C12-2378-TCDD	98	25 - 164
13C12-2378-TCDF-Conf	103	24 - 169
13C12-12378-PeCDD	96	25 - 181
13C12-123478-HxCDD	96	32 - 141
13C12-123678-HxCDD	95	28 - 130

*=This limit was used in the evaluation of the final result

Sample Description: Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample
Riverside Avenue

LLI Sample # WW 6594087
LLI Group # 1298061
Account # 09694

Project Name: Riverside Avenue

Collected: 03/27/2012 07:55 by FR

Submitted: 03/27/2012 17:20
Reported: 04/06/2012 10:27

KEMRON Environmental Services
1359A Ellsworth Industrial Blv
Atlanta GA 30318

TANK4 SDG#: RAK03-01*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received MRL*	As Received EDL	Dilution Factor

Labeled Compounds	%Rec	Windows
13C12-123789-HxCDD	95	28 - 130
13C12-1234678-HpCDD	94	23 - 140
13C12-OCDD	90	17 - 157
13C12-12378-PeCDF	90	24 - 185
13C12-23478-PeCDF	89	21 - 178
13C12-123478-HxCDF	99	26 - 152
13C12-123678-HxCDF	95	26 - 123
13C12-234678-HxCDF	96	28 - 136
13C12-123789-HxCDF	94	29 - 147
13C12-1234678-HpCDF	89	28 - 143
13C12-1234789-HpCDF	86	26 - 138
13C12-OCDF	82	17 - 157

Dioxins/Furans Data Qualifiers:

B *Detected in Method Blank*
U *Undetected*
J *Estimated concentration between Estimated Detection Limit and Minimum Level*
E *Exceeds calibration range*
C *Confirmed quantitation on secondary GC column*
Q *EMPC - Estimated Maximum Possible Concentration*
F *Interference is present*
S *Saturation of detection signal*

General Sample Comments

State of New Jersey Lab Certification No. PA011

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10915	Dioxins/Furans in Water - HRMS	SW-846 8290A	1	12090001	04/01/2012 11:46	Joseph D Anderson	1
11645	Dioxins/Furans in Water-Conf	SW-846 8290A	1	12090001	04/05/2012 17:55	Joseph D Anderson	1
10914	Dioxins/Furans in Water - SepF	SW-846 8290A	1	12090001	03/30/2012 09:00	Deborah M Zimmerman	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Quality Control Summary

Client Name: KEMRON Environmental Services Group Number: 1298061
Reported: 04/06/12 at 10:27 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MRL**	Blank EDL	Report Units	OPR %REC	OPRD %REC	OPR/OPRD Limits	RPD	RPD Max
Batch number: 12090001	Sample number(s): 6594087								
2378-TCDD	< 200	200.	16.2	pg/l	90		67-158		
12378-PeCDD	< 1,000	1,000.	19.1	pg/l	93		70-142		
123478-HxCDD	< 1,000	1,000.	15.5	pg/l	92		70-164		
123678-HxCDD	< 1,000	1,000.	15.4	pg/l	91		76-134		
123789-HxCDD	< 1,000	1,000.	15.7	pg/l	99		64-162		
1234678-HpCDD	< 1,000	1,000.	17.5	pg/l	96		70-140		
OCDD	2,360	2,000.	13.6	pg/l	93		78-144		
2378-TCDF-Conf	< 200	200.	68.3	pg/l	92		75-158		
12378-PeCDF	< 1,000	1,000.	13.3	pg/l	99		80-134		
23478-PeCDF	< 1,000	1,000.	12.0	pg/l	95		68-160		
123478-HxCDF	< 1,000	1,000.	9.92	pg/l	94		72-134		
123678-HxCDF	< 1,000	1,000.	10.0	pg/l	98		84-130		
123789-HxCDF	< 1,000	1,000.	10.3	pg/l	93		78-130		
234678-HxCDF	< 1,000	1,000.	9.87	pg/l	94		70-156		
1234678-HpCDF	< 1,000	1,000.	8.24	pg/l	90		82-122		
1234789-HpCDF	< 1,000	1,000.	9.72	pg/l	94		78-138		
OCDF	< 2,000	2,000.	17.2	pg/l	94		63-170		
Total TCDD	< 200	200.	16.2	pg/l					
Total PeCDD	< 1,000	1,000.	19.1	pg/l					
Total HxCDD	< 1,000	1,000.	15.5	pg/l					
Total HpCDD	< 1,000	1,000.	17.5	pg/l					
Total PCDD	3,760			pg/l					
Total TCDF	288	200.	16.0	pg/l					
Total PeCDF	< 1,000	1,000.	12.6	pg/l					
Total HxCDF	< 1,000	1,000.	10.0	pg/l					
Total HpCDF	< 1,000	1,000.	8.93	pg/l					
Total PCDF	1,250			pg/l					
Total PCDD/PCDF	5,010			pg/l					

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Dioxins/Furans in Water - HRMS
Batch number: 12090001

	13C12-2378-TCDD	13C12-23478-PeCDF	13C12-123478-HxCDF	13C12-123678-HxCDF	13C12-234678-HxCDF	13C12-123789-HxCDF
6594087	98	89	99	95	96	94

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: KEMRON Environmental Services Group Number: 1298061
Reported: 04/06/12 at 10:27 AM

Surrogate Quality Control

Blank	75	66	77	77	76	81
OPR	84	73	84	82	81	93
Limits:	25-164	21-178	26-152	26-123	28-136	29-147
	13C12-1234678-HpCDF	13C12-1234789-HpCDF	13C12-OCDF	13C12-12378-PeCDD	13C12-123478-HxCDD	13C12-123678-HxCDD
6594087	89	86	82	96	96	95
Blank	72	68	63	70	76	77
OPR	79	75	69	76	85	84
Limits:	28-143	26-138	17-157	25-181	32-141	28-130
	13C12-123789-HxCDD	13C12-1234678-HpCDD	13C12-OCDD	13C12-12378-PeCDF	13C12-2378-TCDF-Conf	
6594087	95	94	90	90	103	
Blank	76	71	64	67	72	
OPR	83	78	71	75	74	
Limits:	28-130	23-140	17-157	24-185	24-169	

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 9694 Group# 1298061 Sample # 6594087

COC # 278455

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#:

(1)
Client: KEMRON ENV. SERVICES Acct. #:
Project Name/#: RIVERSIDE AVE PWSID #:
Project Manager: KEVIN SHAVER P.O.#:
Sampler: FRANK RODRIGUEZ Quote #:
Name of state where samples were collected: NEW JERSEY

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable / NPDES — Check if Applicable)	Other	(4) Total # of Containers	(5) Analyses Requested: DIOXIN FURANS IN WATER HRMS								Remarks	(6) Temperature of samples upon receipt (if requested)
FRAC TANK 4 - Bldg 7 Fluid-Sludge	3/27/12	0755a		X		V		2	X								temp 0.9°C	

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 10 DAY TAT - April 11, 2012
Rush results requested by (please circle): Phone Fax E-mail (circled)
Phone #: Fax #:
E-mail address: KSHAVER@KEMRON.COM

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg)	TX TRRP-13	SDG Complete? Yes No
Type II (Tier II)	MA MCP CT RCP	
Type III (Reduced NJ)	Site-specific QC (MS/MSD/Dup)? Yes No	
Type IV (CLP SOW)	(If yes, indicate QC sample and submit triplicate volume.)	
Type VI (Raw Data Only)	Internal COC Required? Yes / No	

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	3/27	10:35	Bill DeLong	3-27-12	10:30
Bill DeLong	3-27-12	17:30			
			[signature]	3/28/12	1720

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		**Inorganic Qualifiers**	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

KEMRON Environmental Services
1359A Ellsworth Industrial Blv
Atlanta GA 30318

April 06, 2012

Project: Riverside Avenue

Submittal Date: 03/27/2012
Group Number: 1298061
SDG: RAK03
PO Number: SF1838-018
State of Sample Origin: NJ

Client Sample Description	Lancaster Labs #	Collected
Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample Riverside Avenue	6594087	03/27/2012 07:55

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	KEMRON Environmental Services	Attn: Janelle Murphy
ELECTRONIC COPY TO	Data Package Group	

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

KEMRON Environmental Services
Project: Riverside Avenue
SDG: RAK03

Report Date: 4/6/2012 10:27
Submit Date: 3/27/2012 17:20

Analysis Name	Units	6594087 Frac Result		MRL**	EDL
2378-TCDD	pg/l	494		200	42.1
12378-PeCDD	pg/l	< 1,000		1,000	41.6
123478-HxCDD	pg/l	1,990	B	1,000	74.0
123678-HxCDD	pg/l	112,000		1,000	74.1
123789-HxCDD	pg/l	5,890	B	1,000	73.6
1234678-HpCDD	pg/l	7,560,000	EB	1,000	449
OCDD	pg/l	59,800,000	EB	2,000	393
2378-TCDF-Conf	pg/l	705	BCQ	200	97.9
12378-PeCDF	pg/l	< 1,000		1,000	26.6
23478-PeCDF	pg/l	< 1,000		1,000	23.1
123478-HxCDF	pg/l	4,860	B	1,000	45.6
123678-HxCDF	pg/l	1,320	B	1,000	45.5
123789-HxCDF	pg/l	< 1,000		1,000	47.3
234678-HxCDF	pg/l	5,510	B	1,000	45.7
1234678-HpCDF	pg/l	355,000	B	1,000	95.6
1234789-HpCDF	pg/l	31,900	B	1,000	109
OCDF	pg/l	2,430,000	B	2,000	75.9
Total TCDD	pg/l	9,750	QB	200	42.1
Total PeCDD	pg/l	10,200	QB	1,000	41.6
Total HxCDD	pg/l	222,000	QB	1,000	73.9
Total HpCDD	pg/l	10,700,000	EQB	1,000	449
Total PCDD	pg/l	70,700,000	EBQ		
Total TCDF	pg/l	13,000	QB	200	51.8
Total PeCDF	pg/l	8,190	QB	1,000	24.7
Total HxCDF	pg/l	207,000	QB	1,000	46.0
Total HpCDF	pg/l	1,830,000	QB	1,000	102
Total PCDF	pg/l	4,500,000	BQ		

** = This limit was used in the evaluation of the final result

KEMRON Environmental Services
Project: Riverside Avenue
SDG: RAK03

Report Date: 4/6/2012 10:27
Submit Date: 3/27/2012 17:20

Total PCDD/PCDF	pg/l	75,200,000 EBQ	

** = This limit was used in the evaluation of the final result

CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
6594087	**Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample**						
10915	Dioxins/Furans in Water - HRMS	SW-846 8290A	1	12090001	4/1/12 1146	Joseph D Anderson	1
11645	Dioxins/Furans in Water-Conf	SW-846 8290A	1	12090001	4/5/12 1755	Joseph D Anderson	1
10914	Dioxins/Furans in Water - SepF	SW-846 8290A	1	12090001	3/30/12 0900	Deborah M Zimmerman	1

Client Name: KEMRON Environmental Services Group Number: 1298061

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MRL**	Blank EDL	Report Units	OPR %REC	OPRD %REC	OPR/OPRD Limits	RPD	Max RPD
Batch number: 12090001		Sample number(s): 6594087							
2378-TCDD	< 200	200.	16.2	pg/l	90		67-158		
12378-PeCDD	< 1,000	1,000.	19.1	pg/l	93		70-142		
123478-HxCDD	< 1,000	1,000.	15.5	pg/l	92		70-164		
123678-HxCDD	< 1,000	1,000.	15.4	pg/l	91		76-134		
123789-HxCDD	< 1,000	1,000.	15.7	pg/l	99		64-162		
1234678-HpCDD	< 1,000	1,000.	17.5	pg/l	96		70-140		
OCDD	2,360	2,000.	13.6	pg/l	93		78-144		
2378-TCDF-Conf	< 200	200.	68.3	pg/l	92		75-158		
12378-PeCDF	< 1,000	1,000.	13.3	pg/l	99		80-134		
23478-PeCDF	< 1,000	1,000.	12.0	pg/l	95		68-160		
123478-HxCDF	< 1,000	1,000.	9.92	pg/l	94		72-134		
123678-HxCDF	< 1,000	1,000.	10.0	pg/l	98		84-130		
123789-HxCDF	< 1,000	1,000.	10.3	pg/l	93		78-130		
234678-HxCDF	< 1,000	1,000.	9.87	pg/l	94		70-156		
1234678-HpCDF	< 1,000	1,000.	8.24	pg/l	90		82-122		
1234789-HpCDF	< 1,000	1,000.	9.72	pg/l	94		78-138		
OCDF	< 2,000	2,000.	17.2	pg/l	94		63-170		
Total TCDD	< 200	200.	16.2	pg/l					
Total PeCDD	< 1,000	1,000.	19.1	pg/l					
Total HxCDD	< 1,000	1,000.	15.5	pg/l					
Total HpCDD	< 1,000	1,000.	17.5	pg/l					
Total PCDD	3,760			pg/l					
Total TCDF	288	200.	16.0	pg/l					
Total PeCDF	< 1,000	1,000.	12.6	pg/l					
Total HxCDF	< 1,000	1,000.	10.0	pg/l					
Total HpCDF	< 1,000	1,000.	8.93	pg/l					
Total PCDF	1,250			pg/l					
Total PCDD/PCDF	5,010			pg/l					

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max

* - Outside of specification
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.
** = This limit was used in the evaluation of the final result

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: Dioxins/Furans in Water - HRMS
Batch number: 12090001

	13C12-2378-TCDD	13C12-23478-PeCDF	13C12-123478-HxCDF	13C12-123678-HxCDF
6594087	98	89	99	95
Blank	75	66	77	77
OPR	84	73	84	82
Limits:	25-164	21-178	26-152	26-123

	13C12-234678-HxCDF	13C12-123789-HxCDF	13C12-1234678-HpCDF	13C12-1234789-HpCDF
6594087	96	94	89	86
Blank	76	81	72	68
OPR	81	93	79	75
Limits:	28-136	29-147	28-143	26-138

	13C12-OCDF	13C12-12378-PeCDD	13C12-123478-HxCDD	13C12-123678-HxCDD
6594087	82	96	96	95
Blank	63	70	76	77
OPR	69	76	85	84
Limits:	17-157	25-181	32-141	28-130

	13C12-123789-HxCDD	13C12-1234678-HpCDD	13C12-OCDD	13C12-12378-PeCDF
6594087	95	94	90	90
Blank	76	71	64	67
OPR	83	78	71	75
Limits:	28-130	23-140	17-157	24-185

	13C12-2378-TCDF-Conf
6594087	103
Blank	72
OPR	74
Limits:	24-169

* - Outside of specification
(1) The result for one or both determinations was less than five times the MRL.
(2) The unspiked result was more than four times the spike added.
** = This limit was used in the evaluation of the final result

Dioxins/Furans Data Qualifiers

B	Detected in Method Blank
U	Undetected
J	Estimated concentration between Estimated Detection Limit and Minimum Level
E	Exceeds calibration range
C	Confirmed quantitation on secondary GC column
Q	EMPC - Estimated Maximum Possible Concentration
F	Interference is present
S	Saturation of detection signal

QC Comment

#VALUE!

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

6594087 Frac Tank 4-Bldg 7 Fluid-Sludge Composite Sample

10915 Dioxins/Furans in Water - HRMS
Reporting limits were raised due to interference from the sample matrix.

10915 Dioxins/Furans in Water - HRMS
Reporting limits were raised due to interference from the sample matrix.

State of New Jersey Lab Certification No. PA011

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		**Inorganic Qualifiers**	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.